

Vine Mealybug Grower Best Management Practices

June 2004

VMB Best Management Practices (BMPs) are common sense practices that will reduce the risks of inadvertent spread of VMB to other blocks and vineyards. The effectiveness of some of these practices has not been validated with research data; however they balance cost with practical considerations for vineyard operations.

Trapping for Male VMB

Growers should place traps for male VMB in all vineyards that have been planted or that have had replants placed in them beginning in 1997 (one trap site per 30 vine acres or vineyard if less than 30 acres).

- 1) If VMB males are caught, notify neighbors and encourage them to set traps in order to assist in locating the infestation(s).
- 2) Notify field workers. Crews should be trained for signs of infestations and damage:
 - a) Depending on the time of year, the insects can be located on top of and under the bark of the trunk, the head of the vine, the cordons and in the canopy and clusters.
 - b) If ants are present, follow them to determine if they are “tending” VMB.
 - c) If few or no ants are present, then look for signs of honeydew – shiny, sticky leaves and trunk. In the late summer and fall, black sooty mold will grow on the honeydew and may be obvious by harvest or pruning time.
 - d) Wet trunks are more prevalent in vineyards with mealybug infestations when few or no ants are present.
- 3) If mealybugs are located on vines, then place a few adults in a container (pill bottle or plastic bag) taking care not to smash them and deliver to the Agricultural Commissioner’s office for formal identification.

Notifications

If you locate and confirm a VMB infestation in your vineyard, then your vineyard is considered “infested”.

- 1) Your neighbors. The insects they are trapping on their property may be coming from your infestation – or the males trapped by your neighbor may be coming from a separate infestation on your neighbor’s property. VMB spread is by physical transfer of nymphs or adults on blowing leaves, birds, equipment, personnel, nursery stock and bud wood. Stay in touch with your neighbors. Communicating the status of all VMB infestations is vital in controlling its spread.
- 2) The Ag Commissioner. Formal identification of the adult mealybugs is advisable. You will be sent a compliance agreement. Items in the agreement are negotiable.
- 3) The UCCE office. This office is conducting research on VMB control measures and is an information source on effectiveness of various control practices.
- 4) The winery that buys your fruit. Winery BMPs exist for maturity sampling and grape delivery and winery waste handling for infested vineyards.
- 5) Any one that visits your vineyard such as your PCA and vineyard supply reps. Sanitation measures are recommended to avoid moving the pest to different blocks or vineyards.

Vineyard Sanitation Practices

To avoid spread to other areas in your vineyard, infested blocks should be the last blocks worked by equipment or field crews in a given day.

- 1) Equipment should be washed prior to leaving the property, ideally with a high-pressure sprayer. All plant debris and sticky surfaces must be removed/cleaned.
- 2) If washing on site is not possible, then wash off-site before entering an uninfested vineyard.
- 3) Ideally, field workers would wear disposable coveralls or sleeve covers while working in infested blocks. These would be removed and placed in a bag for disposal as garbage that will be sent to the landfill.
- 4) If protective clothing is not worn, then workers should wash hands and arms with soap and water prior to leaving the vineyard.
- 5) Shirt and pants should be brushed off and shoes should be brushed or washed to remove fruit or leaf debris.
- 6) Encourage all employees arrive at the job site each morning with a clean change of clothes.
- 7) Consultants, winery personnel and others – including harvest crews – should follow these sanitation practices as well.

Harvesting

Additional efforts must be taken prior to, during and immediately after harvest to reduce the VMB severity and prevent movement of this pest.

- 1) The winery should be notified prior to the harvest date so that a delivery schedule and protocols are in place and understood by all parties before delivery is made.
- 2) If clusters are badly infested, and insecticide pre-harvest intervals do not allow treatment to reduce populations prior to harvest, infested clusters should be picked prior to the actual harvest date, placed in heavy-duty or double plastic bags and sent to a landfill. VMB on ripening clusters can survive under plastic in the sunlight for several days.
- 3) If possible, the infested vineyard is hand harvested by crews at the end of their shift. Pickers should wear protective clothing if possible and remove it before leaving the vineyard as described above. At the very least, pickers should wash hands and arms and picking tools with soap and water prior to leaving the vineyard.
- 4) All picking tubs should be power washed before workers take them out of the field or into an uninfested vineyard.
- 5) The Ag Commissioner must approve machine harvesting. Harvesters can spread VMB down the vine rows and into uninfested vineyards. Care should be taken to not allow leaves to blow outside the vineyard boundary. The harvester must be thoroughly “flood” washed, as is the normal practice, then power washed prior to entering another vineyard.
- 6) Leaves should be removed from the tops of harvest bins. Outside surfaces of trucks, trailers and bins should be pressure washed to remove all plant debris before leaving the vineyard.
- 7) Growers may have to collect winery waste from the infested load for transport back to their vineyard or, preferably, to a landfill for disposal.
- 8) Trucks, trailers and harvest bins should be washed before leaving the winery.

Winery Waste Management in Your Vineyard

Cluster stems from destemming operations and unfermented pomace from cluster pressing operations may contain live VMB. Fermented pomace that has not been combined with either stems or unfermented pomace will not contain live VMB.

- 1) No winery waste should be spread directly in vineyards because VMB may have been present in a vineyard, but not detected prior to harvest.
- 2) Winery waste placed in piles for storage and not managed (that is, the piles are not turned and not wetted as in a composting operation), should be covered in clear plastic immediately after harvest to solarize the mass and reduce VMB numbers. When temperatures warm the following spring, the plastic should be removed and the piles actively managed to complete the composting process if possible.
- 3) Winery waste piles – managed and unmanaged - should be placed at least 50 feet away from vines. In addition, piles should be placed so that leachate from the piles will not contaminate surface and ground waters.
- 4) It is not known at this time how long VMB eggs can survive in winery waste that has been placed in piles and either managed or not managed.

Vineyard Management Companies

Because infestations often go unnoticed for one or more years, sanitation measures should be taken prior to leaving one vineyard and entering another. Before moving off site at each client's property:

- 1) Enable field workers to wash hands and arms with soap and water
- 2) Shirt and pants should be brushed off and shoes should be brushed or washed to remove fruit or leaf debris.
- 3) Power wash all equipment
- 4) Encourage all employees arrive at the job site each morning with a clean change of clothes.

These BMPs are common-sense guidelines that were developed based upon what we know about VMB today. They must be adapted to fit your farming operations and the severity of the VMB infestation. The goal is to limit the inadvertent spread of VMB in Sonoma County, which is in the best interests of all growers and wineries.